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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Michael P. Hollier

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10/31/2006

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EXAMINER

PERUNGAVOOR, SATHYANARAYA V

ART UNIT

PAPER NUMBER

2624

DATE MAILED: 10/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/889,041	Applicant(s) HOLLIER ET AL.	
	Examiner Sath V. Perungavoor	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Declaration under 37 CFR 1.132

[1] The declaration under 37 CFR 1.132 filed on October 23, 2006 is sufficient to overcome the rejection of claims 1-20 based upon 102(b) and 103(a).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

[2] Claims 1-7 and 12-18 are rejected under 35 U.S.C. 102(b) as being anticipated by NPL document titled “Committee T1 Performance Standards Contribution: Objective and Subjective Measures of MPEG Video Quality” (“T1”).

Regarding claim 1, T1 meets all the claim limitations, as follows:

A method of measuring the differences between a first video signal and a second video signal [Fig. 7], said method comprising: analyzing the information content of each video signal to identify the perceptually relevant boundaries (*i.e. edges*) of the video images depicted therein [page 10, paragraphs 3 and 4]; comparing boundaries so defined in the first signal (*i.e.* SI[input]) with those in the second (*i.e.* SI[output]) signal [page 13, paragraph 3], the comparison including determination of the extent to which the properties of the boundaries defined in the first image (*i.e.* SI[input]) are preserved in the second (*i.e.* SI[output]) [page 13, paragraph 3]; and generating an

output (i.e. SI[error]) indicative of the perceptual difference between the first and second signals *[page 13, paragraph 3]*.

Regarding claim 2, T1 meets all the claim limitations, as follows:

A method as in claim 1, in which the information content is analyzed for a plurality of boundary-identifying characteristics *[page 10, paragraph 3; three features]*, and the properties of boundaries on which the comparison is based include characteristics (i.e. edges) by which such boundaries are defined in each of the signals *[page 10, paragraph 4]*.

Regarding claim 3, T1 meets all the claim limitations, as follows:

A method as in claim 2, wherein the characteristics include the presence of edges *[page 10, paragraph 4]*.

Regarding claim 4, T1 meets all the claim limitations, as follows:

A method as in claim 2, wherein the characteristics include the presence of disparities (i.e. gradient) between frames of the same signal *[page 10, paragraph 4]*.

Regarding claim 5, T1 meets all the claim limitations, as follows:

A method as in claim 2, wherein the characteristics include changes in at least one of the properties of: luminance, color or texture *[page 10, paragraphs 3 and 4: luminance]*.

Regarding claim 6, T1 meets all the claim limitations, as follows:

Art Unit: 2624

A method as in claim 1, in which the comparison includes a comparison of perceptibility of corresponding boundaries identified in the first and second signals [page 10, paragraph 3; page 13, paragraph 3].

Regarding claim 7, T1 meets all the claim limitations, as follows:

A method as in claim 1, in which the comparison of the images includes: identification of the principal elements (i.e. ROI) in each image [page 17, paragraph 6], and compensation (i.e. calibration) for difference in the relative positions of said principal elements [page 21, paragraph 3].

Regarding claims 12-18 all claimed limitations are set forth and rejected as per discussion for claims 1-7.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[3] Claims 8, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over T1 in view of Westen et al. ("Westen") [NPL document titled, "Perceptual Image Quality Based on a Multiple Channel HVS Model"].

Regarding claim 8, T1 discloses the following claim limitations:

A method as in claim 1, in which the analysis includes identification of perceptually significant features *[page 10, paragraph 3 and 4]*, and

T1 does not explicitly disclose the following claim limitations:

the output indicative of perceptual difference between the first and second signals is weighted according to the cognitive relevance of such image features.

However, in the same field of endeavor Westen discloses the deficient claim limitations, as follows:

the output indicative of perceptual difference between the first and second signals is weighted (i.e. masking) according to the cognitive relevance of such image features *[Fig. 1; page 2353, column 1, paragraph 3]*.

T1 and Westen are combinable because they are from the same field of image quality assessment.

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of T1 with Westen to include perceptual masking in quality assessment, the motivation to incorporate visual content in quality assessment *[page 2351, column 1, paragraph 2]*.

Regarding claim 19, all claimed limitations are set forth and rejected as per discussion for claim 8.

Regarding claim 20, T1 discloses the following claim limitations as set forth in claim 12.

T1 does not explicitly disclose the following claim limitations:

Art Unit: 2624

Apparatus as in claim 12, further comprising visual stage means for processing original input signals to emulate the response of the human visual system and to generate modified input signals for input to the analysis means.

However, in the same field of endeavor Westen discloses the deficient claim limitations, as follows:

Apparatus as in claim 12, further comprising visual stage means for processing original input signals to emulate the response of the human visual system (i.e. conversion to LBC) and to generate modified input signals for input to the analysis means *[Figure 1; page 2351, col. 2, paragraphs 3 and 4]*.

T1 and Westen are combinable because they are from the same field of image quality assessment.

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of T1 with Westen to emulate the response of human visual system, the motivation to incorporate visual content in quality assessment *[page 2351, column 1, paragraph 2]*.

[4] Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over T1 in view Westen further in view of Zhou [US 5,550,580].

Regarding claim 9, T1 and Westen disclose the claim limitations as set forth in claim 8.

T1 and Westen do not explicitly disclose the following claim limitations:

A method as in claim 8, in which perceptually significant image features are those characteristic of the human face.

However, in the same field of endeavor Zhou discloses the deficient claim limitations, as follows:

A method as in claim 8, in which perceptually significant image features are those characteristic of the human face [*Column 4 Lines 1-5*].

T1, Westen and Zhou are combinable because they are from the same field of image processing.

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of T1 and Westen with Zhou to identify the human face, the motivation being viewer focus would be on the human face and quality defects would be more perceptible in face region [*Column 4, Lines 1-5*].

Regarding claim 10, Zhou meets all the claim limitations, as follows:

A method as in claim 9, in which a weighting is applied to the output according to significance of the feature in providing visual cues to speech [*Column 4, Lines 6-14*].

[5] Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over T1 in view Westen further in view of Bhaskaran et al. ("Bhaskaran") [NPL document titled, "Text and Image Sharpening of Scanned Images in the JPEG Domain"].

Regarding claim 11, T1 and Westen disclose the claim limitations as set forth in claim 8.

T1 and Westen do not explicitly disclose the following claim limitations:

A method as in claim 8, in which perceptually significant image features are those by which individual text characters are distinguished.

Art Unit: 2624

However, in the same field of endeavor Bhaskaran discloses the deficient claim limitations, as follows:

A method according to claim 8, in which perceptually significant image features are those by which individual text characters are distinguished [*Page 326, Column 1, Paragraph 3*].

T1, Westen and Bhaskaran are combinable because they are from the same field of image processing.

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of T1 and Westen with Bhaskaran to identify sharp edges, the motivation being the improve image quality [*Page 326, Column 1, Paragraph 4*].

Contact Information

[6] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Sath V. Perungavoor whose telephone number is (571) 272-7455. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

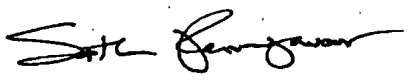
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Bhavesh M. Mehta whose telephone number is (571) 272-7453, can be reached on Monday to Friday from 9:00am to 5:00pm. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system,

Art Unit: 2624


see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dated: October 26, 2006

By: 

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For: Bhavesh M. Mehta


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